Lesson 5: Understanding Desktop Applications

1. You are developing a Windows forms application used by a government agency. You need to develop a distinct user interface element that accepts user input. This user interface will be reused across several other applications in the organization. None of the controls in the Visual Studio toolbox meets your requirements; you need to develop all your code in house. Which of the following actions should you take?
a) Develop a Windows Forms application for the user interface.
b) Develop a custom control for the user interface.
c) Buy the control from a third-party.
d) Develop a console application for the user interface.

Answer: b
Difficulty: Medium
Section Reference: Designing a Windows Form
You need to develop a custom control because you need reusable functionality but also want to develop the code in house. You cannot use Windows Forms because they cannot be reused easily. You cannot use console applications because they do not provide distinct user interface. You cannot buy a control from third-party because you need to develop the code in house.

2. You are developing a user interface component that responds to user actions such as keystrokes. Which of the following programming constructs should you use to accomplish this requirement?
a) event
b) class
c) delegate
d) property

Answer: a
Difficulty: Medium
Section Reference: Designing a Windows Form
Events are generated when users take an action such as pressing keystrokes. You need to handle these events to respond to user actions.

3. You need a Windows Form similar to the `W_RecForm` form that is being already used by the application. However, you need a couple of extra controls on your form that are not available on `W_RecForm`. You need to make sure that you accomplish this requirement with the least coding effort. In future, if the `W_RecForm` is enhanced, you need to make sure that those enhancements are available in your form as well. What should you do?
a) Copy the code for `W_RecForm` to a new form. Modify the code for the new form.
b) Use visual inheritance to inherit the new form from `W_RecForm`. Add the new functionality to the new control.
c) Modify the code for `W_RecForm`. Copy the code to create a new form.
d) Convert the code in the `W_RecForm` to a custom control. Use the new custom control in all places.

Answer: b
Difficulty: Medium
Section Reference: Using Visual Inheritance
You need to use visual inheritance to inherit the new form from `W_RecForm`. Add the new functionality to the new control. Copying the code for `W_RecForm` does not work because future changes to the `W_RecForm` aren't automatically carried forward to the new form. Modifying the code for `W_RecForm` does not work because you don't need to change anything that is already working. Converting the `W_RecForm` to a custom control requires additional programming efforts.

4. You are developing a Windows application. The user needs to work with multiple windows of the application at the same time and needs a simplified interface. The application needs to be compatible with different display configurations, such as multiple monitors. Which of the following interfaces should you create?
a) Create a Multiple Document Interface (MDI) Application. Open a single instance of the application.
b) Create a Single Document Interface (SDI) Application. Open a single instance of the application.
c) Create a Single Document Interface (SDI) Application. Open multiple instances of the application.
d) Create a Multiple Document Interface (MDI) Application. Open multiple instances of the application.

Answer: c
Difficulty: Hard
Section Reference: Understanding Multiple Document Interface (MDI) Applications
MDI applications are complex, and implementing support for multiple monitors is tricky in an MDI application. Because the user wants a simple interface, creating a single document interface (SDI) application and opening multiple instances of the application make up the best course of action. You can switch between multiple application windows by using the Windows taskbar.

5. You need an application that updates the inventory every morning when you log in to the workstation. If an error occurs during update, the application needs to log messages to a text file. The application doesn't need any user interaction. You want to automate the process that launches the application. You want to minimize the efforts for developing, installing, and updating the application. Which type of application should you create?
a) Windows Service
b) Windows Form
c) Web Form
d) console application

Answer: d
Difficulty: Easy
Section Reference: Understanding Console-Based Applications

You need to develop a console-based application. A console-based application provides minimal or no user interface and requires the least effort to program, install, and update. You can use the Windows Startup settings to launch the console application automatically when the user logs in. Finally, the console application can also log messages to a test file.

6. You are developing a data-entry application that receives user input in multiple data fields. The application allows users to enter the data either by using a keyboard or by using a bar-code scanner. When a code is entered, a picture of the product appears onscreen. The application also needs to log its operation to a console window. Occasionally, the operator will look at the console window to monitor communication with the scanner. What project should you choose to create such an application?
a) a console application project
b) a console application project with the Output type set to Windows Application
c) a Windows Forms application project
d) a Windows Forms application project with the Output type set to Console Application

Answer: d
Difficulty: Medium
Section Reference: Understanding Console-Based Applications
To enable reading from or writing to the console from a Windows Forms application, set the project's Output type to Console Application in the project's properties. If you set the Output type to Windows Application, you lose any input or output that you send to the command line.

7. You are developing an application that receives orders over the Internet via Electronic Data Interface (EDI). The application needs to run constantly the background and wait for orders. There is no user interface. The application writes messages to the Windows application event log. The application must continue to run even after a user logs off from the computer. Which type of application should you develop for this requirement?
a) Windows Service application
b) Windows Forms application
c) console application
d) Web application

Answer: a
Difficulty: Medium
Section Reference: Understanding Windows Services
The nature of Windows services make them ideal for creating long-running programs that run in the background and do not provide any direct user interaction. Because a Windows service can run in the background, it does not need a logged-on user to function. Windows services run in their own Windows session in the specified security context.

8. You are developing an application that writes messages to the Windows application event log for the local machine. What should you use to view the messages written by the application?
a) Event Viewer
b) Notepad

c) XPS Viewer
d) Remote Desktop Connection

Answer: a
Difficulty: Medium
Section Reference: Understanding Windows Services
Use the Windows Event Viewer utility to view the messages in event logs. The event viewer messages cannot be opened directly by Notepad. The XPS Viewer can open only the XPS files. The Remote Desktop Connection utility is used to connect to remote computers, but the question is in the context of a local computer.

9. You are developing a new Windows service application. The application contains three different Windows services. Each service will have a different start type. Which of the following classes will help you perform the installation tasks specific to each service? You must suggest a solution that requires the least coding effort.
a) `System.ServiceProcess.ServiceProcessInstaller`
b) `System.ServiceProcess.ServiceInstaller class`
c) `System.Configuration.Installer class`
d) `System.Configuration.Installer.ComponentInstaller class`

Answer: b
Difficulty: Medium
Section Reference: Understanding Windows Services
The `System.ServiceProcess.ServiceInstaller` class performs the installation tasks specific to a single Windows service, such as setting the `ServiceName` and `StartType`. The `ServiceProcessInstaller` class performs installation tasks common to all the Windows services in an application. The `Installer` and `ComponentInstaller` classes are not specifically useful for configuring a Windows service application.

10. You are developing a new Windows service application that process orders. The system administrator must be able to suspend order processing while maintenance operations are in progress. When maintenance operations are completed, order processing must be resumed without the loss in any information. How should you configure this Windows service?
a) Override the `OnPause` method of the `ServiceBase` class.
b) Set the `CanPauseAndContinue` property of the service to true.
c) Set the `CanPauseAndContinue` property of the service to false.
d) Override the `OnContinue` method of the `ServiceBase` class.

Answer: b
Difficulty: Medium
Section Reference: Understanding Windows Services
The value of the `CanPauseAndContinue` property indicates whether the service can be paused and resumed without losing information. When you override the `OnPause` and `OnContinue` methods, you can specify the actions that need to be taken when a Windows service is paused or resumed.

11. You are developing a new Windows service application. The application contains three different Windows services. Before these services can be used, they must be installed in the Windows service database. What action should you take to ensure that your services can be installed by a Windows installer tool?
a) Copy the service assembly to the global assembly cache.
b) Add an event log installer to the Windows service project.
c) Inherit the service from a `ServiceBase` class.
d) Add a service installer to the Windows service project.

Answer: d
Difficulty: Medium
Section Reference: Understanding Windows Services
Before a Windows service can be used, it must be installed in the Windows service database by adding a service installer to the Windows service project. The other answer choices do not directly relate to the installation of a Windows service.

12. You are developing a new Windows application that needs to write messages to the event log. You use the `EventLog` class to write these messages. Each event log message must specify the name of the application writing to an event log. Which property of the `EventLog` class should you use?
a) `Source`
b) `Log`
c) `Site`
d) `MachineName`

Answer: a
Difficulty: Medium
Section Reference: Understanding Windows Services
The `Source` property of the `EventLog` class is used to specify the application name to use when writing to an event log. The `Log` property specifies the name of the log to read from or write to. The `Site` property specifies the `Isite` of the Component. The `MachineName` property specifies the name of the computer on which to read or write events.

13. You are updating an existing Windows Forms application. The form hosts a `DateTimePicker` control named `dateTimePicker1`. You need to write code that executes when the value of the `dateTimePicker1` control is changed. You write a method, `ProcessValueChanged`, that contains the code you want to execute. What code should you write to invoke the `ProcessValueChanged` method? Any code that your write must not affect existing functionality of the application.

a)   ```
dateTimePicker1.ValueChanged += new System.EventHandler(
      ProcessValueChanged);
```

b)    ```
dateTimePicker1.ValueChanged = new System.EventHandler(
      ProcessValueChanged);
```

c)   ```
dateTimePicker1.Value += new System.EventHandler(
```

```
        ProcessValueChanged);
```

d)   dateTimePicker1.Value = new System.EventHandler(
        ProcessValueChanged);

Answer: a
Difficulty: Medium
Section Reference: Understanding Windows Forms Event Model
The correct answer is to write the following code:

```
    dateTimePicker1.ValueChanged += new System.EventHandler(
        ProcessValueChanged);
```

If you use the = assignment operator rather than the += operator, you lose the existing functionality. The Value member is a property; ValueChanged is an event.

14. You have developed a Windows service that needs to access data stored in the Windows Registry. Which of the following accounts should you use for running this Windows service?
a) LocalSystem
b) NetworkService
c) LocalService
d) User (where the UserName property is set to a member of non-administrator role)

Answer: a
Difficulty: Medium
Section Reference: Understanding Windows Services
The LocalSystem value specifies a highly privileged account. The Windows service will need these privileges to access Windows Registry. The other answer choices are incorrect because these accounts do not have access to Windows Registry.

15. You have developed a Windows Forms application that stockbrokers will use. The stockbrokers need to view data for multiple stocks at the same time. You need to change the display and behavior of a Windows Form so that it can contain multiple child windows. What should you do?
a) Set the IsMdiChild property of the form.
b) Set the MdiParent property for all the child windows.
c) Set the MdiChild property of the form.
d) Set the IsMdiContainer property of the form to true .

Answer: d
Difficulty: Medium
Section Reference: Understanding Multiple Document Interface (MDI) Applications
You need to set the IsMdiContainer property of the form to true. The IsMDIContainer property indicates whether the form is a container for multiple-document interface (MDI) child forms. The IsMDIChild property is a read-only property that specifies whether a form is an MDI child window. The MdiParent property specifies the current multiple-document

Solution Practice Exam Lesson 5

interface (MDI) parent form for the given form. In the question, you want the given form to be an `MdiParent`.

16. You are developing a Windows Form with a multiple document interface (MDI). You need to write code that arranges the child windows vertically within the client region of the MDI parent form. Which of the following `MdiLayout` values should you pass to the `LayoutMdi` method?
a) `MdiLayout.TileVertical`
b) `MdiLayout.Cascade`
c) `MdiLayout.TileHorizontal`
d) `MdiLayout.ArrangeIcons`

Answer: a
Difficulty: Medium
Section Reference: Understanding Multiple Document Interface (MDI) Applications
When the value is `MdiLayout.TileVertical`, all MDI child windows are tiled vertically within the client region of the MDI parent form. When the value is `MdiLayout.TileHorizontal`, all MDI child windows are tiled horizontally within the client region of the MDI parent form. When the value is `MdiLayout.Cascade`, all MDI child windows are cascaded within the client region of the MDI parent form. When the value is `MdiLayout.ArrangeIcons`, all MDI child icons are arranged within the client region of the MDI parent form.

17. You are developing an application that will be run from the command line. Which of the following methods would you use for getting input from to the command line?
a) `File.Read`
b) `File.Write`
c) `Console.Read`
d) `Console.Write`

Answer: c
Difficulty: Easy
Section Reference: Understanding Console-Based Applications
Console-based applications do not have a graphical user interface but use a text-mode console window to interact with users. Use the `Read` method to get input from the console and the `Write` method to send output to the console.

18. You have developed two console applications. The first, DisplayFile.exe, accepts the name of a text file as a command-line argument and displays the file's contents. The second, ToUpper.exe, accepts text from users and converts the text to uppercase letters. You need to combine both commands so that contents of a given file (sample.txt) can be displayed in uppercase letters. Which of the following commands would you choose?
a) `ToUpper | DisplayFile Sample.txt`
b) `DisplayFile Sample.txt | ToUpper`
c) `ToUpper > DisplayFile Sample.txt`
d) `DisplayFile Sample.txt > ToUpper`

Answer: b
Difficulty: Medium
Section Reference: Understanding Console-Based Applications
The | character works as a pipe between commands, so the console output from DisplayFile.exe works as console input to the ToUpper.exe. By using pipes, you can chain multiple simple commands to accomplish complicated tasks. The answer `ToUpper | DisplayFile Sample.txt` is incorrect because you first need to display the file's contents before you can convert them to uppercase letters. The > symbol is a redirection operator that can save the output to a file.

19. You need to start a Windows service named `ProcService` from the command line. Which command should you use?
a) `net start ProcService`
b) `net pause ProcService`
c) `net continue ProcService`
d) `net stop ProcService`

Answer: a
Difficulty: Medium
Section Reference: Understanding Windows Services
The net.exe command-line utility comes installed with Windows. This utility allows you to perform various networking commands, including control of Windows services. Use the `start` parameter to start a Windows service.

20. You have developed a Windows service and need to install it to implement its functionality. Which of the following options should you use to accomplish this task?
a) Visual Studio Server Explorer
b) Services node in the Computer Management window
c) InstallUtil.exe
d) gacutil.exe

Answer: c
Difficulty: Medium
Section Reference: Understanding Windows Services
The Installer tool (installutil.exe) allows you to install and uninstall server resources such as Windows services by executing the installer components in a specified assembly.